

Chapter 6 Solving and Graphing Linear Inequalities

6.1 Solving One-Step Linear Inequalities

Rules for Solving Inequalities

Examples:

Practice:

1. $x - 4 > -13$

2. $-10y \geq 50$

6.2 Solving Multi-Step Linear Inequalities

Examples

Practice:

1. $17 - x \geq 12$

2. $3x + 2 > x - 8$

3. Your school carnival charges \$2 for admission and \$.50 for each game. You go to the carnival with \$5.50. Write and solve an inequality that represents the possible number of games you can play. What is the maximum number of games you can play?

6.3 Solving Compound Inequalities

Examples

Practice

1. $-25 \leq 11x - 3 < 8$

2. $-9x - 5 > 13$ or $2x - 1 \geq 3$

6.4 Solving Absolute Value Equations & Inequalities

By definition:

$$|x| = a \text{ means}$$

For absolute value inequalities, remove the absolute value sign by writing as a compound inequality:

$$|x| < a \rightarrow$$

$$|x| > a \rightarrow$$

Examples

Practice

1. $|x - 3| = 7$

2. $|4x + 10| = 34$

3. $|x - 7| < 16$

4. $|x - 11| + 2 > 8$

6.5 Graphing Linear Inequalities in Two Variables.

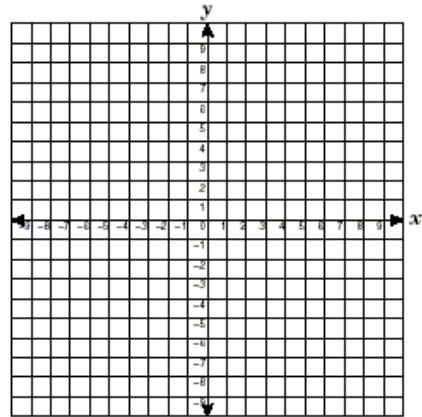
An ordered pair is a *solution* of an inequality if substituting the x & y values in for the variables yields a true statement.

Examples

Graphing a Linear Inequality

1. Graph the line using any convenient method
2. Your line should be
Solid when _____.
Dotted when _____.
3. Choose any convenient point [the point (0,0) is always nice] and substitute it into the inequality.
4. If the point is
A solution—shade the same side of the line as the point.
Not a solution—shade the opposite side of the line as the point.

Example

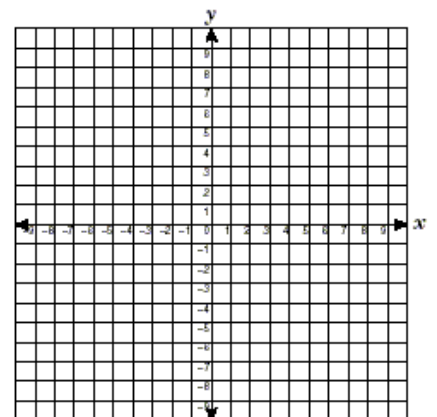
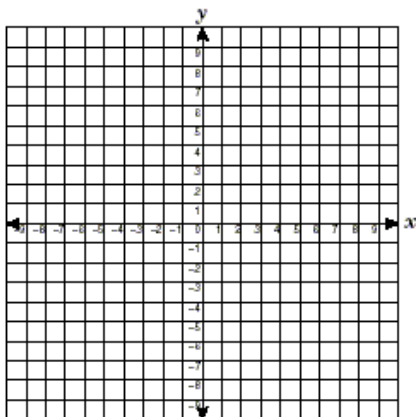


Practice

Sketch the graph of each inequality

1. $x + y \geq -2$

2. $5x - y < 3$



6.6 Stem & Leaf Plots & Mean, Median & Mode

Mean—

Median—

Mode—

Steps to follow to make a Stem-and-Leaf Plot

Example

Make an ordered stem-and-leaf plot of the data. Then find the mean, median and mode(s).

15 , 10 , 17 , 23 , 19 , 15 , 22 , 16 , 45 , 20 , 13 , 12 , 17 , 15

6.7 Box-and Whisker Plots

Second quartile—

First quartile—

Third Quartile—

How to find Quartiles

1. Write the numbers in increasing order.
2. Find the second quartile
3. Find the first & third quartiles

Example

Find the first, second and third quartiles of the data.

15, 8, -5, 0, 2, 11, 10, -5, 4, 4, -3, 10, 7, 2, -2, 1

Steps for drawing a Box-and-Whisker Plot

1. Find all your quartiles
2. Plot the least number, the first quartile, the second quartile, the third quartile and the greatest number on a number line.
3. Draw a line from the least number to the greatest number below your number line.
4. Plot the same points on that line.
5. The *box* extends from the first to the third quartile---draw this in.
6. Draw a vertical line in the box at the second quartile.
7. The *whiskers* connect the box to the least and greatest numbers.

Example

Make a box-and-whisker plot of the data.

3, 6, 1, 4, 5, 4, 4, 7, 3, 3, 3, 1, 2, 3, 4, 4, 6, 5, 3, 3, 1, 2, 5, 4, 4, 5, 4, 2, 4, 5.